Defense Information Infrastructure (DII)

Common Operating Environment (COE)

Version 3.2.0.0

Kernel Installation Guide (Solaris 2.5.1)

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Preface

The following conventions have been used in this document:

[HELVETICA FONT]	Used to indicate keys to be pressed. For example, press [RETURN].
Courier Font	Used to indicate entries to be typed at the keyboard, operating system commands, titles of windows and dialog boxes, file and directory names, and screen text. For example, execute the following command at the prompt: `setenv boot-device diskN`
"Quotation Marks"	Used to indicate prompts and messages that appear on the screen.
Italics	Used for emphasis.

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1. Introduction

1.1   Overview

This document provides the information and guidance necessary for proper installation of the Solaris 2.5.1 Operating System and the Defense Information Infrastructure (DII) Common Operating Environment (COE) Version 3.2.0.0 kernel.

The DII COE contains a large number of functional blocks called segments; however, not all segments are required for every application. The DII COE *kernel* is the minimal set of software required on every workstation, regardless of how the workstation will be used. The DII COE kernel includes the following features:

- Ꞓ   Operating system

- Ꞓ   Windowing environment

- Ꞓ   System Administration function

- Ꞓ   Security Administration function

- Ꞓ   Runtime tools

- Ꞓ   Commercial Off-the-Shelf (COTS) software [including desktop graphical user interface (GUI) and windowing environment]

- Ꞓ   Government Off-the-Shelf (GOTS) software.

The System Administration segment is required because it contains the software needed to load all other segments. The GUI is required because it is the interface through which an operator issues commands to the system. The GUI is an icon- and menu-driven desktop interface, not a command line interface. The templates included in the DII COE kernel describe the basic runtime environment context that an operator inherits upon login (for example, which processes are run in the background, or which environment variables are defined). The DII COE kernel ensures that every workstation in the system operates in a consistent manner and that every workstation begins with the same environment.

From an installation sequence perspective, it is necessary to define a subset of the DII COE kernel called the bootstrap COE. Segments are installed through a special COE program called the segment installation tool, which is accessed as a system administration function. However, the segment installation tool itself must be installed before it can be used to install segments. Moreover, COTS software is typically not in segment format. How then is the segment installation tool, as well as at least a minimum operating system, installed to permit the DII COE kernel to be loaded? This is done by first loading the operating system and windowing environment, then by loading the DII COE segment installation software. Once the DII COE is

thus "bootstrapped," it is possible to load the remaining components of the DII COE kernel and any additional segments.

Figure 1 illustrates the process. The user is responsible for installing the operating system and windowing environment, the DII COE, which contains operating system modifications to support DII, the desktop GUI, the COE, System Administration, and Security Administration.
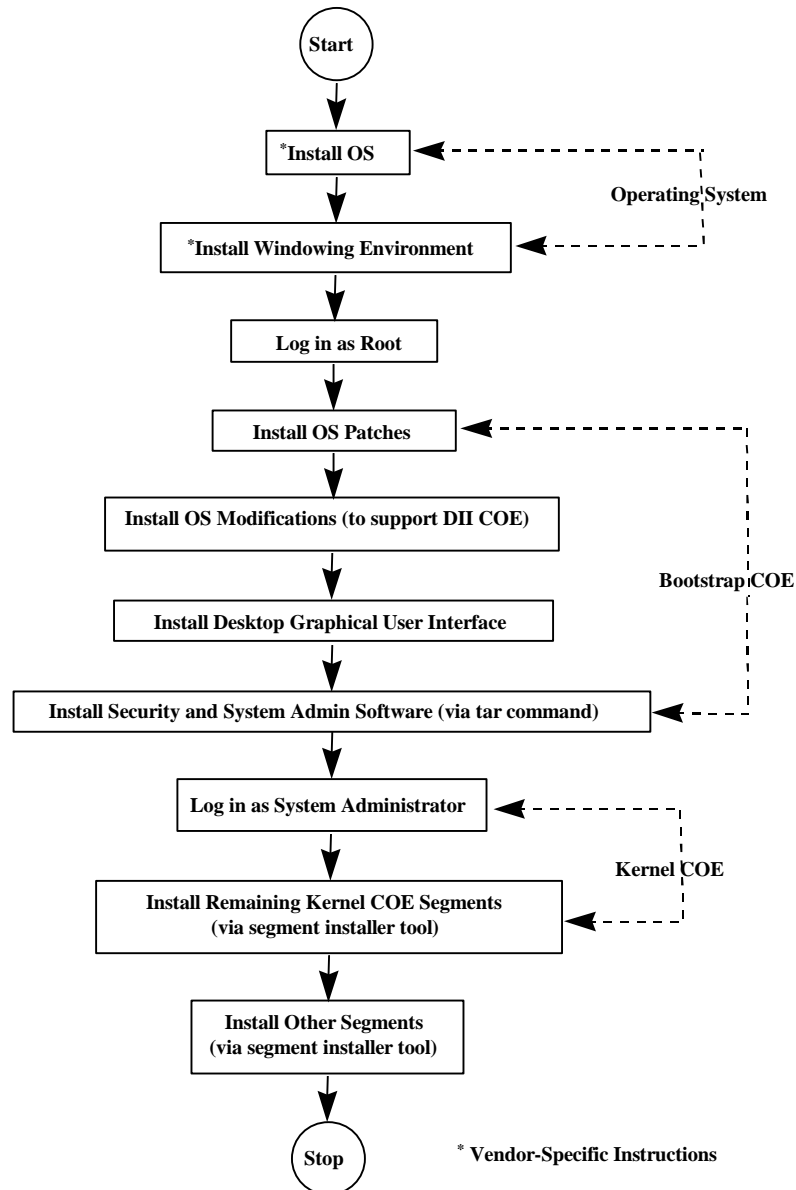
Figure 1. Notional DII COE Kernel Installation

This installation approach offers several advantages, including the following:

C   It greatly simplifies the installation process by handling all vendor-unique issues first (for example, loading the operating system and patches).

C   It guarantees a standard starting configuration for all platforms, regardless of how they will be used.

C   It allows all remaining segments to be loaded in a standard way, regardless of the hardware platform or mission application, thus simplifying system administration.

Through the COE, segments may extend the base environment as required as they are loaded. Refer to the *DII COE Integration and Runtime Specification* for more information about the DII COE.

1.2   Referenced Documents

The following documents are referenced in this installation guide:

C   DII COE I&RTS:Rev 3.0, *Defense Information Infrastructure (DII) Common Operating Environment (COE) Integration and Runtime Specification* Version 3.0, January 1997

C   DII.3200.Sol251.AG-1, *Defense Information Infrastructure (DII) Common Operating Environment (COE) Version 3.2.0.0 System Administrator's Guide (Solaris 2.5.1)*, July 25, 1997

C   DII.3200.Sol251.SMG-1, *Defense Information Infrastructure (DII) Common Operating Environment (COE) Version 3.2.0.0 Security Manager's Guide (Solaris 2.5.1)*, July 25, 1997

C   DOD 5200.28-STD, *Department of Defense Trusted Computer System Evaluation Criteria*, United States Government Printing Office, December 1985.

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2. System Environment

2.1 System Requirements

This section describes DII COE hardware and DII COE kernel components for the Solaris 2.5.1 Operating System.

2.1.1 Hardware Components

The following hardware components are required. The software may reside on a single disk or across multiple disks.

- **Solaris computer**. A SPARC 5/10/20, SPARC 1000/1000e, or SPARC 2000/2000e.

- **Memory**. 64 or more megabytes (MB) of random access memory (RAM)

- **Hard disk drive**. Recommend 1.2 gigabyte (GB) or larger capacity.

- **Source device**. 4mm digital audio tape (DAT) drive or 8mm Exabyte drive.

2.1.2 Kernel Components

The DII COE kernel is a suite of applications layered on top of the Solaris 2.5.1 Operating System. The DII COE kernel tape contains software relating to the following areas:

- Operating system

- Administration software required for installation and system and security administration

- X Windows software

- Motif software

- Common Desktop Environment (CDE) software

- CSELCK (Deadman) software

- CSECON (Console Window) software

- CSEXDM (X Display Manager) software

- CSEPAS (Password) software

- Accounts and Profiles windowing system.

2.2   Installation Preparation

You must answer the following questions before you install the Solaris Operating System and the DII COE kernel. Your system administrator should provide you with the appropriate answers.

2.2.1   Solaris Operating System Installation Preparation

Answer the following questions before installing Solaris.

1. What is the password for the root administrative account? This password is required to log in to the system and is defined as a final step in the Solaris installation process.

2. What is the name of the system?

NOTE: You can find the name of the system in using one of the following methods:

C The name of the system can be found by typing the following command at a prompt:

```
/usr/bin/uname -n  [RETURN]
```

The name of the system is displayed.

C The name of the system can be found if you know the Internet Protocol (IP) address of the system. Type the following command at a command line prompt. This command only works if the Domain Name Service (DNS) has been configured.

```
/usr/bin/nslookup [IP address][RETURN]
```

For example, if the IP address of the system is 121.121.121.121, type the following command:

```
/usr/bin/nslookup [121.121.121.121][RETURN]
```

The following information appears:

```
 Server:  myserver
 Address: 123.123.123.123

 Name:    mysystem
 Address: 121.121.121.121
```

where `myserver` is the name server, `123.123.123.123` is the IP address of the name server, and `mysystem` is the name of the system.

---

3. What is the IP address of the system?

NOTE:

1. If you know the name of the system (for example, `mysystem`) but do not know the IP address of the system, type the following command at a command line prompt:

```
/usr/bin/cat /etc/hosts[RETURN]
```

After you type this command, information similar to the following appears:

```
127.0.0.1          localhost
121.121.121.121    mysystem
```

The line that contains the name of the system being configured also includes the IP address.

2. If you know the name of the system but do not know the IP address of the system, type the following command at a command line prompt. This command only works if DNS has been configured.

```
/usr/bin/nslookup [host name][RETURN]
```

For example, if the name of the system is `mysystem`, type the following command:

```
/usr/bin/nslookup [mysystem][RETURN]
```

The following information appears:

```
Server:  myserver
Address: 123.123.123.123

Name:    mysystem
Address: 121.121.121.121
```

where `myserver` is the name server, `123.123.123.123` is the IP address of the name server, and `121.121.121.121` is the IP address of the system.

---

4. Does your system have more than one network adapter? If so, what is the appropriate primary network interface?

5. Does your local area network (LAN) have subnetworks? If so, what is the default netmask used on the site LAN?

6. Which drive is your boot drive?

7. Do you need to partition additional drives?

8. What is the amount of physical RAM on the workstation?

---

9. How much swap space will be required to support all of your applications?

10. What are the sizes of the `/security1` and `/security2` partitions?

2.2.2 DII COE Kernel Tape Installation Preparation

Answer the following questions before installing the DII COE kernel tape.

1. Is a Sun-compatible tape drive attached to the local system? If so, what is the local tape device number?

2. Is a Sun-compatible tape drive attached to another SPARC system? If so, what is the remote tape device number and the IP address of the remote host?

3. Does your network have a default router? If so, what is the IP address of the default router? Solaris will configure a default router if the user answers "no" to the following prompt: `Does this network have a default router?`This prompt is described in Section 3.4, *Installing the DII COE Kernel*.

2.2.3 Completing the DII COE Kernel Installation

Answer the following questions before completing the DII COE kernel installation.

1. What is the System Administration (sysadmin) password?

2. What is the Security Administration (secman) password?

3. Should the Basic Security Module (BSM) be enabled? This option enables auditing. Refer to the *DII COE System Administrator's Guide (Solaris 2.5.1)* for information on configuring and unconfiguring C2 auditing.

3. Solaris 2.5.1 Kernel Installation

3.1   Booting the Solaris 2.5.1 CD

Follow the steps below to boot the Solaris 2.5.1 CD.

STEP 1:   **Power up the system**.

STEP 2:   **Log in**. Log in as `root` and enter your password.

STEP 3:   **Shut down the system**. Click on the `Text Editor` control, which is located on the CDE Front Panel, and then click on the `Terminal` control. A terminal emulator window appears. Type the following command at the prompt to shut down the system:

   `halt` [RETURN]

   The system shuts down and, after a few seconds, an "`ok`" boot prompt appears.

NOTE: Determine the SCSI ID of the boot disk to be used for this installation. The SCSI ID of the boot disk is a number from 0-6 (usually 3), which should appear on the back of an external disk drive. If you are using an internal disk drive, type the following command at the `OK` boot prompt to show all SCSI devices on your system:

  `probe-scsi` [RETURN]

NOTE: Refer to the *DII COE System Administrator's Guide (Solaris 2.5.1)* for more information about CDE.

STEP 4:   **Insert the Solaris 2.5.1 CD**. Insert the Solaris 2.5.1 CD into the system's CD-ROM drive.

STEP 5:   **Boot the Solaris 2.5.1 CD**. Type the following command at the "`ok`" prompt to boot the CD:

   `boot cdrom` [RETURN]

NOTE: The CD will take a few minutes to boot. Once the CD has booted, the Solaris "`Welcome`" screen appears briefly, followed by `The Solaris Installation Program` screen.

STEP 6:   **Proceed to the next section**. Proceed to the Section 3.2 to configure Solaris 2.5.1.

3.2   Configuring Solaris 2.5.1

Follow the steps below to configure Solaris 2.5.1.

NOTE: The prompts and menu items displayed below are representative and may not reflect the actual prompts verbatim.

NOTE: When booting with a Solaris 2.5.1 CD-ROM, the machine may automatically detect its host name, IP address, and primary network interface (if applicable) if an installation server has been configured on the network. An installation server is normally configured by the system administrator in advance to make it easier to load the operating systems on machines on the network. If an installation server is on the network and the machine automatically detects its host name, IP address, and primary network interface (if applicable), STEPS 1 through 7 may not appear. If this is the case, proceed to STEP 8 to configure Solaris 2.5.1.

STEP 1: **Prepare to identify peripheral devices, identify your system, and install Solaris software**. The `Solaris Installation Program` screen appears. Click on the `Continue` button to begin the installation process.

STEP 2: **Prepare to identify the system as a networked or non-networked system, and set the default time zone, date, and time**. The `Identify This System` screen appears. Click on the `Continue` button to begin identifying the system.

STEP 3: **Enter a host name to identify the system on the network**. The `Host Name` screen appears. Enter a host name (for example., `mysystem`) in the `Host name` field and click on the `Continue` button.

NOTE: The name must be unique within the domain in which it resides. Creating a duplicate host will cause network problems after you install Solaris 2.5.1. A host name must have at least two characters and can contain letters, digits, and minus signs (-). A host name must start with a letter. Uppercase letters are not recommended.

STEP 4: **Specify that the system is connected to a network**. The `Network Connectivity` screen appears. Click on the `Yes` toggle and click on the `Continue` button.

STEP 5: **Specify which network adapter is the system's primary network interface**. The `Primary Network Interface` screen appears *only if* your machine has more than one network adapter. If this screen appears, click on the appropriate primary network interface toggle (for example, `le0`, `le1`) and then click on the `Continue` button. Usually, the correct choice is the lowest number; however, you should ask your system administrator if you are not sure.

NOTE: If your machine only has one network adapter, the `Primary Network Interface` screen will not appear.

STEP 6: **Enter the IP address for the system**. The `IP Address` screen appears. Type an IP address in the `IP address` field and click on the `Continue` button.

NOTE: An IP address must be unique and follow your site's address conventions or a system or network failure may result. IP addresses contain four sets of numbers between 0 and 255 that are separated by periods (for example, `121.121.121.121`).

STEP 7: **Confirm that the system's host name, primary network interface (if your machine has more than one network adapter), and IP address are correct and that the system is networked**. The `Confirm Information` screen appears. Click on the `Continue` button if the information is correct, or click on the `Change` button to return to the `Host Name`, `Network Connectivity`, `Primary Network Interface` (if your machine has more than one network adapter), and `IP Address` screens to change information.

STEP 8: **Provide name service information**. The `Name Service` screen appears. Click on the `None` toggle and click on the `Continue` button.

NOTE: Domain Name Service (DNS) will be configured via the System Administration software following the DII COE kernel installation.

STEP 9: **Confirm that the name service information is correct.** The `Confirm Information` screen appears. Click on the `Continue` button if the information is correct, or click on the `Change` button to return to the `Name Service` screen.

STEP 10: **Specify if your LAN has subnetworks**. The `Subnets` screen appears. Click on the `Yes` toggle if your LAN has subnetworks, or click on the `No` toggle if your LAN does not have subnetworks. Then click on the `Continue` button. If you click on the `Yes` toggle, proceed to STEP 11. If you click on the `No` toggle, proceed to STEP 12.

STEP 11: **Enter the netmask used on the site LAN**. The `Netmask` screen appears. Click on the `Continue` button to accept the default netmask, or type the netmask (for example, `255.255.255.0`) and click on the `Continue` button.

> **NOTE**: The netmask will vary depending on your network's IP class. Ask your system administrator if you are not sure of the subnetwork mask.

STEP 12: **Specify the default time zone by geographic region, offset from Greenwich Mean Time (GMT), or time zone file**. The `Time Zone` screen appears. Click on either the `Geographic region` toggle, the `Offset from GMT` toggle, or the `Time zone file` toggle.

If you click on the `Geographic region` toggle and click on the `Set...` button, the `Geographic Region` screen appears. Click on a region and a time zone from the `Regions` and `Time zones` lists to select them. Click on the `Continue` button when done.

If you click on the `Offset from GMT` toggle and click on the `Set...` button, the `Offset From GMT` screen appears. Specify the default time zone as an offset from GMT. If you are east of Greenwich, England, specify a positive number from 1 to 13; if you are west of Greenwich, England, specify a negative number from -12 to -1. To specify hours offset from GMT, move the `Hours Offset` slide to the correct hour. Click on the `Continue` button when done.

If you click on the `Time zone` file toggle and click on the `Set...` button, the `Time Zone File` screen appears. Specify the default time zone by pointing to a file in the `/usr/share/lib/zoneinfo` directory. Specify the file name in the `File name` field (path is not necessary), or click on the `Select` button to view a list of files in the `/usr/share/lib/zoneinfo` directory.

If you click on the `Select` button, a screen appears that allows you to select a directory and a file. Click on the appropriate directory and file to select them and click on the `OK` button. The `Time Zone File` screen reappears. Click on the `Continue` button when done.

STEP 13: **Accept the default date and time or enter new values**. The `Date and Time` screen appears. Accept the default values if they are correct or enter values for the current year, month, day, hour, and minute. Then click on the `Continue` button.

STEP 14: **Confirm that the system is part of a subnetwork, and confirm that the time zone, date, and time selected are correct**. The `Confirm Information` screen appears. Click on the `Continue` button if the information is correct, or click on the `Change` button to return to the `Subnets`, `Time Zone`, and `Date and Time` screens to change the information.

STEP 15: **Prepare to tailor the manner in which Solaris is installed on the system**. The `Install Solaris Software — Initial` screen appears. Click on the `Continue` button to select a system type, select Solaris software, select disks to hold selected software, and specify how file systems are laid out on disks.

NOTE: Your disk will be overwritten and all data will be lost. It is recommended that you back up any data you wish to save before installing the Solaris 2.5.1 operating system.

STEP 16: **Initialize the disk**. The `Upgrade System?` screen appears. Click on the `Initial` button.

STEP 17: **Select a system type.** The system type determines where a system will get its directories and file systems. The `System Type` screen appears. Click on the `Standalone` toggle and then click on the `Continue` button.

STEP 18: **Select the Solaris software to install on your system**. The `Software` screen appears. Click on the `End User System Support` toggle and click on the `Continue` button.

STEP 19: **Proceed to the next section**. Proceed to Section 3.3 to partition the boot disk and install Solaris 2.5.1.

3.3   Partitioning the Boot Disk and Installing Solaris 2.5.1

Follow the steps below to partition the boot disk and any additional disks, and to install Solaris 2.5.1. The boot disk is the drive that will contain the Solaris 2.5.1 Operating System.

STEP 1: **Designate a disk for installing Solaris software**. The `Disks` screen appears. Click on a disk in the `Available Disks` list to designate that disk as your boot drive (usually `c0t3d0`) and click on the `Add` button. The selected disk now appears in the `Selected Disks` list.

STEP 2: **Select additional disks to be used, if any**. If you choose not to select additional disks, click on the `Continue` button and proceed to STEP 3. To select additional disks, click on them in the `Available Disks` list and click on the `Add` button. The selected disk(s) now appear in the `Selected Disks` list. Click on the `Continue` button after you have selected all disks to be used.

STEP 3: **Choose not to preserve existing data**. The `Preserve Data?` screen appears. Click on the `Continue` button to allow current file systems and unnamed slices to be overwritten.

STEP 4: **Choose to lay out file systems manually**. The `Automatically Layout File Systems?` screen appears. Click on the `Manual Layout` button.

STEP 5: **Choose to customize your current file system and disk layout**. The `File System and Disk Layout` screen appears. Click on the `Customize...` button.

STEP 6: **Edit all disks you have selected**. The `Customize Disks` screen appears. This screen shows a partition map for each disk that you designated for use. For each partition map shown, the first column indicates the slice number, the second column is a text entry field that indicates the mount point or partition name, and the third column is a text entry field that indicates the disk size in MB.

NOTE: Use the following partition map as a guideline for partitioning your system boot disk. Input the boldface text that appears in the fields, as described in STEPS 7-11. System administrators may choose to modify partition parameters to accommodate specific configurations.

NOTE: The `/opt` directory is linked to `/h/COTS/UNIX/opt` and the `/var` directory is part of the root (`/`) partition.

```
                    Disk: c0t3d0 2048 MB

     0             /             350 (See STEP 7 below)
     1             swap          (See STEP 8 below)
     2             overlap       [size of the disk]
     3             /security1    (See STEP 9 below)
     4             /security2    (See STEP 10 below)
     5
     6
     7             /h            [Z](See STEP 11 below)


                    Capacity: X MB
                    Allocated: Y MB
                    Free: Z MB
                    Rounding Error: 1 MB
```

STEP 7: **Enter the name and size of slice 0**. Label slice 0 as "`/`". Enter "`350`" as the size of slice 0.

NOTE: If the size of the hard disk, which is shown in the `Capacity` field, is 2048MB, the recommended size of slice 0 is approximately 350MB with the remainder going to slice 7. If the system is configured with a 510MB hard disk and 64MB of RAM, slice 0 should be 151MB and slice 1 should be 64MB. However, if the system is configured with a 510MB hard disk and 32MB of RAM, slice 0 should be 183MB and slice 1 should be 32MB.

STEP 8: **Enter the name and size of slice 1**. Label slice 1 as "`swap`" and enter the size of slice 1. The size of slice 1 is based on the amount of physical RAM on the workstation.

The amount of swap space required is program dependent. For example, if Unified Build (UB) is loaded, the recommended amount of swap space is 300MB. Ask your system administrator for the correct amount of swap space required for your site.

NOTE: Do not modify the size of slice 2, which is labeled as "`overlap`".

STEP 9: **Enter the name and size of slice 3**. Label slice 3 as "`/security1`". The size of this partition is site specific. Ask your system administrator for the correct size.

STEP 10: **Enter the name and size of slice 4**. Label slice 4 as "`/security2`". The size of this partition is site specific. Ask your system administrator for the correct size.

NOTE: Partitions 3 and 4 will be used for audit trail data.

NOTE: Do not enter a mount point or size for slices 5 and 6.

STEP 11: **Enter the name and size of slice 7**. Label slice 7 as "`/h`" and enter the size of slice 7. The size of slice 7 is a variable that should be all remaining unallocated space (z), which is shown in the `Free` field.

NOTE: The size of slice 7 must be at least 275MB.

After you fill in the size of slice 7, use your mouse to click anywhere else on the partition map. The amount of free space (z) shown in the `Free` field should change to 0. If it does not, increase the size of slice 7 by the amount of remaining free space (z) shown in the `Free` field.

STEP 12: **Determine if you need to partition additional drives**. If you need to partition additional drives, follow STEPS 13-15 for each additional drive. If you do not, proceed to STEP 16.

STEP 13: **View the additional drive(s)**. Use the scroll bar at the bottom of the partition map to view the additional drives. If you have additional drives, they will appear to the right of the system boot disk partition map.

NOTE: Use the following partition map as a guideline for partitioning additional drives. Input the boldface text that appears in the fields, as described in STEPS 14-15. System administrators may choose to modify partition parameters to accommodate specific configurations.

```
Disk: c0t1d0 2048 MB

0         /homeN       (See STEP 14 below)
1         swap         (See STEP 15 below)
2         overlap      [size of the disk]
3
4
5
6
7


          Capacity: X MB
          Allocated: Y MB
          Free: Z MB
          Rounding Error: 1MB
```

STEP 14: **Enter the name and size of slice 0**. Label slice 0 as "/homeN" (where N is the additional drive number).

NOTE: If you are partitioning three drives, one drive is designated as the boot drive. The second and third drives are then designated as additional drives. Slice 0 on the first additional drive would have a mount point of /home1, the second additional drive would have a mount point of /home2, and the third additional drive would have a mount point of /home3.

Next, enter the size of slice 0. The size of slice 0 will be the free space (Z) less the amount of swap space defined in STEP 8.

After you fill in the size of slice 0, use your mouse to click anywhere else on the partition map. The amount of free space (Z) shown in the Free field should reflect the amount of swap space to be configured in STEP 15.

STEP 15: **Enter the name and size of slice 1**. Label slice 1 as "`swap`" and enter the size of slice 1. The size of slice 1 is based on the amount of physical RAM on the workstation. The size should be the same as the size of slice 1 for the boot disk. Refer to STEP 8 for more information about determining the appropriate swap space size.

NOTE: Do not modify the size of slice 2, which is labeled as "`overlap`".

STEP 16: **Accept the partitioning modifications you have made to the drive(s)**. Click on the `OK` button on the `Customize Disks` screen after you have partitioned your boot drive and any additional drives.

STEP 17: **Continue to prepare to install Solaris 2.5.1**. The `File System and Disk Layout` screen reappears. This screen shows the current file system and disk layout, based on information you have supplied. To accept the layout, click on the `Continue` button. To change the layout, click on the `Customize` button. If you click on the `Customize` button, the `Customize Disk` screen reappears (see STEP 6).

STEP 18: **Mount software from a remote file server**. The `Mount Remote File Systems?` screen appears. Click on the `Continue` button to bypass mounting remote file systems.

STEP 19: **View your profile for installing Solaris 2.5.1 software**. The `Profile` screen appears, which reflects choices made on previous screens. Click on the `Begin Installation` button to accept the profile and begin installing Solaris 2.5.1 software, or click on the `Change` button to change any or all of the selections. If you click on the `Change` button, the `System Type` screen reappears (see STEP 17 in Section 3.2, *Configuring Solaris 2.5.1*).

STEP 20: **Choose to reboot the machine after installing Solaris 2.5.1 software**. A new window appears. Click on the `Reboot` button.

The `Installing Solaris - Progress` screen appears. The installation process can take between 15 minutes and 2 hours, depending on the number of drives that need to be partitioned and the speed of the local CD-ROM or networked installation server. A status bar shows the progress of the installation. When the software is completely installed, the message "`Installation Complete`" appears, the system reboots, and a prompt for the root password appears.

NOTE: If you are using a SuperSPARC II CPU module, your system may not reboot. The Sun4d systems include SPARCcenter 2000, SPARCcenter 2000E, SPARCserver 1000, and SPARCserver 1000E. Once the machine has rebooted, you should proceed with the installation and continue with Section 3.4, *Installing the DII COE Kernel*.

A message similar to the following may appear:

```
kernel needs workaround for SuperSPARC bug 12 for revision 0 cpu 2.
```

If such a message appears, type the following commands:

```
boot cdrom -sw [RETURN]
```

```
mount /dev/dsk/dc#d#d0s0 /a [RETURN]     <# is the same as your boot disk and your
                                            installation disk>
```

```
mv /a/kernel/unix /a/kernel/unix.orig [RETURN]
```

```
cp /kernel/unix /a/kernel/unix [RETURN]
```

```
umount /a [RETURN]
```

```
reboot -- -r [RETURN]
```

The system then reboots in the normal manner.

STEP 21: **Enter and confirm a password**. Enter any desired password at the `root password` prompt and press [RETURN]. Enter the password a second time to confirm the password at the `Re-enter your root password` prompt and again press [RETURN]. A login prompt appears.

STEP 22: **Proceed to the next section**. Proceed to Section 3.4 to install the DII COE kernel tape.

3.4   Installing the DII COE Kernel

The DII COE kernel tape provides the desktop GUI, the operating system patches, and the Security and System Administration software. Follow the steps below to install the DII COE kernel.

STEP 1:   **Log in**. Log in as `root` and enter your password.

STEP 2:   **Remove the CD from the CD-ROM drive**. Type the following command to eject the CD from the CD-ROM drive:

```
/usr/bin/eject cdrom[RETURN]
```

Remove the Solaris 2.5.1 CD from the drive.

STEP 3:   **Load the kernel tape**. Load the DII COE kernel tape into a tape drive.

STEP 4:   **Extract the installation program from the tape**. Execute the following command if the Sun-compatible tape drive is attached to the system:

```
/usr/bin/tar xvf /dev/rmt/Xmn [RETURN]
```

(where X is the tape drive number).

Execute the following command if the Sun-compatible tape drive is attached to another SPARC system:

```
/usr/bin/rsh Y dd if=/dev/rmt/Xmn bs=20b | tar xvfB -[RETURN]
```

(where Y is the remote host's IP address, and X is the tape drive number). The following message should appear:

```
x tmp, 0 bytes, 0 tape blocks
x tmp/inst.dii, 10976 bytes, 22 tape blocks
x tmp/inst.ssa, 12356 bytes, 25 tape blocks
3+0 records in
3+0 records out
```

NOTE: The tape drive number is a number from 0-6 (usually 0). If you are unsure of the tape drive number, type the `tar xvf /dev/rmt/Xmn` command using "0" as the value for X. If this command does not work, type the command using the numbers 1-6 for X, respectively.

STEP 5:   **Start the installation program**. Type the following command to start the installation program:

> `/tmp/inst.dii` [RETURN]

A message appears indicating that the installation will take 20-45 minutes. Press [RETURN].

STEP 6:   **Determine if the tape drive you will use for the installation is attached locally**. The following prompt appears: `Is the tape drive you will be using for the installation attached locally?` Type `Y` or `N` and press [RETURN]. If you type `N`, proceed to STEP 7, if you type `Y`, proceed to STEP 8.

STEP 7:   **Enter the IP address of the remote host**. The following prompt appears: `Enter the IP address of the remote host where the drive is attached` Enter the IP address and press [RETURN]. You may enter the host name of the remote host if that name has been entered in the `/etc/hosts` file.

STEP 8:   **Enter the tape drive number**. The following prompt appears: `Enter the device number of the tape drive (eg. 0)`. Type the tape drive number and press [RETURN].

STEP 9:   **Determine if your network has a default router**. The following prompt appears: `Does this network have a default router?` Type `Y` or `N` and press [RETURN]. If you type `Y`, proceed to STEP 10.

If you type `N`, installation of the DII COE kernel tape begins; proceed to STEP 12.

NOTE: You can configure the default router after the installation using the System Administration capability. Reference the *DII COE System Administrator's Guide (Solaris 2.5.1)* for information about configuring a default router. Even if you indicate that the network does not have a default router in STEP 9 because you do not want to configure the router now or because you do not know the IP address of the default router, it is possible that the default router is being broadcast over the network and that the Solaris 2.5.1 Operating System automatically will recognize the network's default router.

STEP 10:   **Enter the IP address of your default router**. The following prompt appears: `Enter the IP address of your Default Router` Enter the IP address and press [RETURN].

STEP 11: **Confirm that the IP address entered is correct**. The following prompt appears:

```
You have chosen [IP address] as the default router for this
system. Is this correct?
```

Type Y and press [RETURN] if the information is correct, or type N and press [RETURN] to return to the prompt described in STEP 10.

Installation of the DII COE kernel tape begins.

NOTE: Installation of the DII COE and Solaris 2.5.1 Operating System patches takes 20-45 minutes. During this time, the DII COE kernel installation tape will eject itself.

STEP 12: **Proceed to the next section.** Proceed to Section 3.5 to complete the DII COE installation.

3.5   Completing the DII COE Kernel Installation

Follow the steps below to confirm passwords and install the Basic Security Module (BSM).

Installing the BSM enables the system to be C2 compliant. C2 is a level of effectiveness of security controls as defined by the *Department of Defense Trusted Computer System Evaluation Criteria* (DOD 5200.28-STD). C2 provides the user with shadow password and auditing capabilities. Shadow passwords are encrypted passwords stored in a separate database from the password database to deter access by unauthorized users. Auditing is the recording, examining, and reviewing of any or all security-relevant activities on a secure system.

STEP 1: **Enter and confirm password for `sysadmin`.** Press [RETURN] after you enter the necessary password for each of the following prompts:

```
Enter a password for sysadmin:
New password:
Re-enter new password:
```

STEP 2: **Enter and confirm a password for `secman`.** Press [RETURN] after you enter the necessary password for each of the following prompts:

```
Enter a password for secman:
New password:
Re-enter new password:
```

NOTE: Following the system confirmation of the sysadmin and secman passwords, a system configuration script runs, which takes about 5 minutes.

STEP 3: **Enable the Basic Security Module.** The following prompt appears: `This script is used to enable the Basic Security Module (BSM). Shall we continue with the conversion now (y/n)?` Type `Y` or `N`. Refer to the *DII COE System Administrator's Guide (Solaris 2.5.1)* for information on configuring and unconfiguring C2.

The system reboots to complete the DII COE kernel installation and the DII COE login screen appears. You can now log in to the system, as described in Section 4, *DII COE Login Accounts*.

4. DII COE Login Accounts

After you install the Solaris 2.5.1 Operating System and the DII COE kernel, predefined login accounts are available to allow you to perform functions that are described in detail in the *DII COE System Administrator's Guide (Solaris 2.5.1)*.

To use the DII COE, you must enter a login name and password. The DII COE Login screen (Figure 2) and the DISA security screen appear any time a machine loaded with the Solaris 2.5.1 Operating System and the DII COE kernel is rebooted or any time a user logs out of the system at the console.
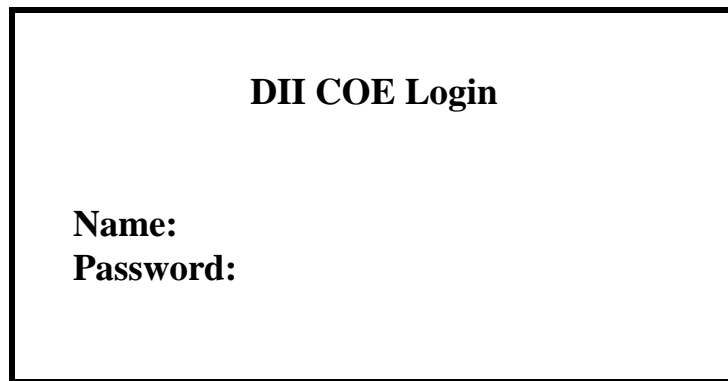
<div style="border:2px solid black; padding:2em;">

DII COE Login

Name:
Password:

</div>

Figure 2. DII COE Login Screen

To begin using the DII COE, enter any of the valid login commands described in the following sections.

4.1   The root Login

The `root` login is the standard UNIX `root` login. Follow the steps below to log in as `root` from the DII COE Login screen:

STEP 1:   **Log in as `root`.** Type `root` at the `Name` prompt and press [RETURN].

STEP 2:   **Enter the `root` password**. Type the `root` password at the `Password` prompt and press [RETURN].

The CDE Front Panel appears at the bottom of the screen.

4.2   The System Administration Login

The sysadmin login displays a menu bar of system administration and maintenance utilities. These utilities allow the system administrator to perform various system administration functions, such as selecting and configuring printers, managing print jobs, and closing windows; rebooting and shutting down the system, mounting file systems, formatting hard drives, and initializing floppy diskettes; installing segments; changing the machine ID, editing host information, setting the system time, configuring a workstation as a DNS, setting routing configuration, and configuring NIS+; and removing global data. Refer to the *DII COE System Administrator's Guide (Solaris 2.5.1)* for further information about the System Administration application software.

Follow the steps below to log in to the System Administration utility from the DII COE Login screen:

STEP 1:   **Log in as system administrator**. Type `sysadmin` at the `Name` prompt and press [RETURN].

STEP 2:   **Enter the `sysadmin` password**. Type the `sysadmin` password at the `Password` prompt and press [RETURN].

The System Administration software appears.

4.3   The Security Administration Login

The secman login displays a menu of security administration and maintenance utilities. These utilities perform security administration tasks such as setting menu fonts, accessing audit information, accessing alarms, setting classification, creating and maintaining user roles, and configuring printers. For further information about the Security Administration application software, please reference the *DII COE Security Manager's Guide (Solaris 2.5.1)*.

Follow the steps below to log in to the Security Administration utility from the DII COE Login screen:

STEP 1:   **Log in as security administrator**. Type `secman` at the `Name` prompt and press [RETURN].

STEP 2:   **Enter the `secman` password**. Type the `secman` password at the `Password` prompt and press [RETURN].

The Security Administration software appears.